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Date: 29/5/20023

External Evaluation Report

(E-learning programme of study)

- **Higher Education Institution:**

  European University Cyprus
- **Town:** Nicosia
- **School/Faculty (if applicable):** School of Sciences
- **Department/ Sector:** Computer Science and Engineering
- **Programme of study- Name (Duration, ECTS, Cycle) In Greek:**

  Ασφάλεια Κυβερνοχώρου (18 μήνες, 90 ECTS, Μάστερ(MSc), Εξ Αποστάσεως)

  In English:

  Cybersecurity (18 months, 90 ECTS, Master (MSc), E-Learning)

- **Language(s) of instruction:** English
- **Programme's status:** Currently Operating
  - **Last Accreditation Σ44 - 15 και 16 Ιουλίου 2019**
- **Concentrations (if any):**
  In Greek: Concentrations
  In English: Concentrations

ΚΥΠΡΙΑΚΗ ΔΗΜΟΚΡΑΤΙΑ
REPUBLIC OF CYPRUS

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the "Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws" of 2015 to 2021 [L.136(I)/2015 – L.132(I)/2021].

A. Introduction

This part includes basic information regarding the onsite visit.

This is to confirm that the External Evaluation Committee (EEC) has visited the campus and met with the senior management of the University along with the Dean and members of staff of the faculty and some of the admin staff and students. The EEC was briefed on the University human and material resources related to the programme and visited the Library, classrooms and labs. The EEC was able to obtain the information required to provide an objective, professional and fair assessment of the programme. University staff and staff from CYQAA were very helpful.

B. External Evaluation Committee (EEC)

Name	Position	University
Prof Nicholas Tsagourias	Chair	University of Sheffield, UK
Prof. Thomas Heide Clausen	Member	Ecole Polytechnique, France
Prof. Ahmed Al-Dubai	Member	Edinburgh Napier University, Scotland
Prof. Olaf Zawacki-Richter	Member	Carl von Ossietzky University of Oldenburg, Germany
Mr. Themistos Arnaoutis	Member (Student)	Open University of Cyprus, Cyprus

C. Guidelines on content and structure of the report

- *The external evaluation report follows the structure of assessment areas.*

- *At the beginning of each assessment area there is a box presenting:*
  (a) sub-areas
  (b) standards which are relevant to the European Standards and Guidelines (ESG)
  (c) some questions that EEC may find useful.

- *The questions aim at facilitating the understanding of each assessment area and at illustrating the range of topics covered by the standards.*

- *Under each assessment area, it is important to provide information regarding the compliance with the requirements of each sub-area. In particular, the following must be included:*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

- *The EEC should state the compliance for each sub-area (Non-compliant, Partially compliant, Compliant), which must be in agreement with everything stated in the report. It is pointed out that, in the case of standards that cannot be applied due to the status of the HEI and/or of the programme of study, N/A (= Not Applicable) should be noted.*

- *The EEC should state the conclusions and final remarks regarding the programme of study as a whole.*

- ***The report may also address other issues which the EEC finds relevant.***

1. Study programme and study programme's design and development
(ESG 1.1, 1.2, 1.7, 1.8, 1.9)

Sub-areas

1.1 Policy for quality assurance
1.2 Design, approval, on-going monitoring and review
1.3 Public information
1.4 Information management

1.1 Policy for quality assurance

Standards

- *Policy for quality assurance of the programme of study:*
    - *has a formal status and is publicly available*
    - *supports the organisation of the quality assurance system through appropriate structures, regulations and processes*
    - *supports teaching, administrative staff and students to take on their responsibilities in quality assurance*
    - *ensures academic integrity and freedom and is vigilant against academic fraud*
    - *guards against intolerance of any kind or discrimination against the students or staff*
    - *supports the involvement of external stakeholders*

1.2 Design, approval, on-going monitoring and review

Standards

- *The programme of study:*
    - *is designed with overall programme objectives that are in line with the institutional strategy and have explicit intended learning outcomes*
    - *is designed by involving students and other stakeholders*
    - *benefits from external expertise*
    - *reflects the four purposes of higher education of the Council of Europe (preparation for sustainable employment, personal development, preparation for life as active citizens in democratic societies, the development and maintenance, through teaching, learning and research, of a broad, advanced knowledge base)*
    - *is designed so that it enables smooth student progression*
    - *is designed so that the exams' and assignments' content corresponds to the level of the programme and the number of ECTS*
    - *defines the expected student workload in ECTS*

- o *includes well-structured placement opportunities where appropriate*
- o *is subject to a formal institutional approval process*
- o *results in a qualification that is clearly specified and communicated, and refers to the correct level of the National Qualifications Framework for Higher Education and, consequently, to the Framework for Qualifications of the European Higher Education Area*
- o *is regularly monitored in the light of the latest research in the given discipline, thus ensuring that the programme is up-to-date*
- o *is periodically reviewed so that it takes into account the changing needs of society, the students' workload, progression and completion, the effectiveness of procedures for assessment of students, student expectations, needs and satisfaction in relation to the programme*
- o *is reviewed and revised regularly involving students and other stakeholders*

1.3 Public information

Standards

- • *Regarding the programme of study, clear, accurate, up-to date and readily accessible information is published about:*
  - o *selection criteria*
  - o *intended learning outcomes*
  - o *qualification awarded*
  - o *teaching, learning and assessment procedures*
  - o *pass rates*
  - o *learning opportunities available to the students*
  - o *graduate employment information*

1.4 Information management

Standards

- • *Information for the effective management of the programme of study is collected, monitored and analysed:*
  - o *key performance indicators*
  - o *profile of the student population*
  - o *student progression, success and drop-out rates*
  - o *students' satisfaction with their programmes*
  - o *learning resources and student support available*
  - o *career paths of graduates*
- • *Students and staff are involved in providing and analysing information and planning follow-up activities.*

You may also consider the following questions:

- *What is the procedure for quality assurance of the programme and who is involved?*
- *Who is involved in the study programme's design and development (launching, changing, internal evaluation) and what is taken into account (strategies, the needs of society, etc.)?*
- *How/to what extent are students themselves involved in the development of the content of their studies?*
- *Please evaluate a) whether the study programme remains current and consistent with developments in society (labour market, digital technologies, etc.), and b) whether the content and objectives of the study programme are in accordance with each other?*
- *Do the content and the delivery of the programme correspond to the European Qualifications Framework (EQF)?*
- *How is coherence of the study programme ensured, i.e., logical sequence and coherence of courses? How are substantial overlaps between courses avoided? How is it ensured that the teaching staff is aware of the content and outputs of their colleagues' work within the same study programme?*
- *How does the study programme support development of the learners' general competencies (including digital literacy, foreign language skills, entrepreneurship, communication and teamwork skills)?*
- *What are the scope and objectives of the foundation courses in the study programme (where appropriate)? What are the pass rates?*
- *How long does it take a student on average to graduate? Is the graduation rate for the study programme analogous to other European programmes with similar content? What is the pass rate per course/semester?*
- ***How is it ensured that the actual student workload is in accordance with the workload expressed by ECTS?***
- *What are the opportunities for international students to participate in the study programme (courses/modules taught in a foreign language)?*
- *Is information related to the programme of study publicly available?*
- *How is the HEI evaluating the success of its graduates in the labor market? What is the feedback from graduates of the study programme on their employment and/or continuation of studies?*
- *Have the results of student feedback been analysed and taken into account, and how (e.g., when planning in-service training for the teaching staff)?*
- *What are the reasons for dropping out (voluntary withdrawal)? What has been done to reduce the number of such students?*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

The assessed program of study on cybersecurity addresses important academic and professional needs. It has clear learning objectives. Programme evaluation processes and Quality Assurance processes are appropriate. Information about the programme and its structure is clear and communicated to prospective students. The EEC was provided with information about completion and drop out rates as well as about the gender distribution of students. The EEC was provided with the previous evaluation report and notes that the School acted upon its findings.

The cyber security programme was evaluated in 2017, and was at that time pioneering. Its duration is 18 months comprising 90 ECTS in conformity with the Bologna process. The 90 ECTS credits of the programme are made up of 6 mandatory courses of 10 ECTS each, followed by either a 30 ECTS Masters thesis, or one 10 ECTS mandatory course and two 10 ECTS elective courses from among 5 proposed cybersecurity courses.

The mandatory courses of this programme are "Introduction to Cybersecurity", "Communications and Network Security", "Cryptography", "Policy, Governance, Law, and Compliance", "Cybersecurity Architectures and Operations" and "Ethical Hacking and Penetration Testing". The electives are "Research Methods in Cybersecurity", "Current Trends in Cybersecurity", "Risk Analysis and Management", "Data Privacy in the era of Data Mining and AI" and "Incident Response and Forensic Analysis".

Courses are assessed according to class participation, assignments, and final exams, according to a uniform metric for all courses, which is communicated to the students and in the programme marketing material.

Only e-learning students/alumni were present during the site visit, but as the e-learning and the conventional programmes are identical in content, their feedback is included here. There was general satisfaction with the programme, and the instructors. Specifically with respect to the e-learning format, the students appreciated both the flexibility that it offered, the diversity of subjects presented, and the availability of the instructors both for synchronous class sessions, and for ad-hoc meetings. Students expressed the view that the course "Research Methods" might be more relevant for "conventional" students, than for working professionals who already are adept at seeking information independently – and that synchronous "group projects", as are present in several courses, were difficult to fit into their schedules. The majority of students appreciated the fact that they acquired skills directly transferable to their day-to-day work.

The School has a stated admission policy and criteria (see relevant section).

EUC has a documented, formal, and centrally defined QA process, termed *"Program Evaluation Review (PER)"*, which it instantiates for each of its programmes - including for the cybersecurity programme. Within this process and for a given programme, an identified advisory committee composed of *external stakeholders* (industry, professionals) formulates recommendations. These recommendations are – along with input from an *"expert panel"*, from internal stakeholders (alumni, students), from regulatory bodies, etc., – considered by the *"program committee"* for when formulating program evolutions.

The "Program Evaluation Review" is initiated periodically, as well as at the behest of the program director on an ad-hoc basis.

No information was provided about the exact composition of the "advisory board", the "expert panel", and the "program committee" or the selection of their members in the submitted documents – nor were questions on this topic asked by the EEC during the on-site visit: we assume that this is in line with University procedures and reflects the needs of the programme.

The programme displays an ambition of enrolling 30 students per year. During the 2017-2022 period, the programme has, in fact, admitted only a total of 27 students, which translates into an average of only around 6 students/year – and with zero students admitted during 2020-2022. While during the first two years (2017-2019), the programme had a zero drop-out rate, the period 2019-2022 saw only 1 out of the 10 enrolled students successfully graduating, with the remaining 9 dropping out of the programme.

While the global health situation during 2020-2021 no doubt is part of the explanation for both the low enrolment and high drop-out rates, compounding factors are likely to also include (i) the existence of an *identical* programme offered as distance-learning/e-learning by the University, and therefore that (ii) the conventional programme does not offer any distinguishing features (in terms of curriculum, pedagogic modalities,) that would weigh in students' preferences over the distance learning programme.

Programme evaluation processes and Quality Assurance processes are appropriate. Information about the programme and its structure is clear and communicated to prospective students. The EEC was provided with information about completion and dropout rates as well as about the gender distribution of students. The EEC was provided with the previous evaluation report and notes that the School acted upon its findings.

The difference in student enrolment numbers between the two Masters programmes in Cybersecurity confirms (iii) our general observation that few students are interested in cybersecurity as their *first professional degree* – whereas there is a significant interest among already working professionals to add cybersecurity to their already deployed competencies, as part of their professional development activities without interrupting their careers.

The current team of instructors is enthusiastic, dynamic, extremely engaged, and committed to the success of the programme – and is investing considerable efforts, and time, in its success. This is true for both full-time faculty, and part-time adjunct instructors.

Given the significant teaching and administrative load involved in coordinating, operating, and teaching in any Masters program – let alone one which requires significant annual content updates such as is the case in Cybersecurity – it is not uncommon for research, and research productivity, of the faculty involved to accrue less attention and effort, and thereby to gain less scientific visibility and impact, as measured through, e.g., various bibliometrics, of the faculty members. The committee notes that the full-time faculty members demonstrate contributions in teaching and program administration that, presently, dwarfs their scientific production and impact.

The committee notes that the full-time faculty, including the program director, are presently in junior academic roles (lecturer, assistant professor) – and, therefore, with potential future career progression.

Strengths
A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The current team of instructors is dynamic, extremely engaged and committed to the success of the programme, and their work is unanimously appreciated by the students.

A considerable effort has been made in identifying and including hands-on exercises that the students can do on their own computers – ensuring that, other than bringing theoretical competencies, the programme offers directly applicable, operational skills.

All course material (textbooks included) are available online something appreciated by the students and facilitated by the Library.

The programme content delivers on core knowledge and aptitudes.

The quality assurance involves external stakeholders and students.

Several instructors have operational experience which can enrich the students' learning experience.

Areas of improvement and recommendations
A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

This is a fast growing area that requires constant adaptation in order for the programme to remain competitive and relevant.

In terms of the *programme content*, the field of cybersecurity can be schematically summarised as three broad topics:

- *Systems construction* – How do you construct systems that are as secure as possible?
- *Audit, Governance* – Given a system, how do you – continuously – ensure that they remain secure?
- *Incident Planning, Response, Forensics* – Given a system, once it is compromised, what is the proper posture?

Considering that the mandatory courses of this programme are "Introduction to Cybersecurity", "Communications and Network Security", "Cryptography", "Policy, Governance, Law, and Compliance", "Cybersecurity Architectures and Operations" and "Ethical Hacking and Penetration Testing", the programme partly covers the first of these topics – *"Systems Construction"* – though, given the evolution of the digital society over the past 5 years since the inception of the programme, inclusion of topics such as "DevSecOps", "Embedded Systems Security", and "Cloud Security" as part of the core curriculum could constitute a meaningful update which reflects and responds to discipline and professional developments and needs.

The conventional programme does not address, other than in passing, the topic of *"Audit, Governance"* – and that is a good thing: in the roles where this question is central, considerable (a decade, or more) of operational experience is generally expected. Thus preserving the "sensibilisation" to this topic is necessary – but, also, sufficient.

In view of the increasing prevalence of cyberattacks, and the necessity of dealing with the fall-outs from these competently (something which the interviews with recent-graduates from the programme amply illustrated are part and parcel of the job of even recent graduates) it is surprising to see the topic of *"Incident Planning, Response, Forensics"* covered only through the electives "Risk Analysis and Management" and "Incident Response and Forensic Analysis". Including these topics as part of the core curriculum could constitute a meaningful update.

Finally, to properly cover training also would-be experts on the topic of Incident *Planning, Response, Forensics,* including electives in "Threat Intelligence", "Crisis Management/Communication" and "Leadership in High-Stress/Crisis Situations" could be worth exploring.

In terms of the *programme structure*, the role of the Master's thesis is worth reconsidering. In part, according to the discussions during the site-visit, more than half of students opt for the electives rather than the thesis. Also, the evolution of cybersecurity as a scientific and professional domain means that the required core skill-set evolves and expands – making it valid to reassess the 'thesis option' or its delivery, for example by enhancing its independent research component.

In terms of the *programme documentation*, the submitted materials list each course as granting 10 ECTS units – which corresponds to 250-300 study-hours. However each course is also listed as 42h of "lectures" (or equivalent) with, explicitly, "none" indicated for lab/exercises – rendering the question of how the students spend the balance of 200-250h of their "study time" per course. Discussions during the site visit suggests that perhaps the "lab/exercises" component was underestimated, and this merits therefore being clarified and properly documented.

As for the _programme organisation_, given the significance of research for faculty promotion (_"substantial record of presentations at peer-reviewed conferences"_, _"substantial output in form of articles in refereed journals"_, _"strong participation in research grants or research projects"_, _"evidence of contribution to the research community"_, _"impact on an international level…indicated by citation impact analysis"_, etc, as per faculty promotion guidelines, _it is critical for staff retention – and, therefore, for the successful continuation of the programme_ – to ensure conditions conducive to enabling the full-time faculty to:

- produce a substantial record of presentations at peer-reviewed conferences, and publications in refereed journals;
- apply for and participate in research grants/projects;
- demonstrate contributions and scientific impact on an international level.

To this end, it is the EEC's view that recruiting a senior faculty member with an international profile, relevant expertise, and ability to inspire and manage staff will contribute to a _renewal of the collective research dynamics in cybersecurity_ within the existing team at EUC – in addition to sharing the teaching and administrative load involved in the delivery of the cybersecurity programmes.

In terms of the _programme's place and professional and academic prestige_, given that the "conventional" cybersecurity programme is primarily geared for students seeking a Masters degree in Cybersecurity as their first professional degree co-exists and competes with this e-learning cybersecurity programme which is primarily targeting working professionals seeking to add "cybersecurity" to their existing professional competencies, it may be worthwhile considering the respective content of the two programmes.

One option could be to concentrate only on this successful e-learning programme. A more ambitious option would be to position the two programmes differently. For example, for the "conventional" programme to explicitly position, label, and structure it as specialising in (with reference to the three topics discussed under "Program Content") _"Systems construction"_ and _"Incident Planning, Response, Forensics"_ – and maintaining and further developing the innovative pedagogical activities that the faculty members and instructors are already promoting: "Capture the Flag" (CTF) competitions, Cyber-exercises, group projects, etc.

This would also allow positioning, labelling, and structuring this e-learning programme explicitly for the target audience – working professionals, with both experience and with constrained calendars – for example by emphasising (with reference to the three topics discussed under "Program Content") _"Audit, Governance"_, which necessitates a certain prior professional experience. This would also allow adapting the pedagogical approach, _e.g._, avoiding synchronous group projects, not easy to fit into the schedules of working professionals, and emphasising, for example, case studies/analysis.

Please select what is appropriate for each of the following sub-areas:

Sub-area		Non-compliant/ Partially Compliant/Compliant
1	Policy for quality assurance	Compliant
1.2	Design, approval, on-going monitoring and review	Compliant
1.3	Public information	Compliant
1.4	Information management	Compliant

ΦΟΡΕΑΣ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΤΗΣ ΑΝΩΤΕΡΗΣ ΕΚΠΑΙΔΕΥΣΗΣ
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2. Student – centred learning, teaching and assessment *(ESG 1.3)*

Sub-areas

2.1   Process of teaching and learning and student-centred teaching methodology
2.2   Practical training
2.3   Student assessment
2.4   Study guides structure, content and interactive activities

2.1 Process of teaching and learning and student-centred teaching methodology

Standards

- The e-learning methodology is appropriate for the particular programme of study.
- Expected teleconferences for presentations, discussion and question-answer sessions, and guidance are set.
- A specific plan is developed to safeguard and assess the interaction:
  - among students
  - between students and teaching staff
  - between students and study guides/material of study
- Training, guidance and support are provided to the students focusing on interaction and the specificities of e-learning.
- The process of teaching and learning supports students' individual and social development.
- The process of teaching and learning is flexible, considers different modes of e-learning delivery, where appropriate, uses a variety of pedagogical methods and facilitates the achievement of planned learning outcomes.
- Students are encouraged to take an active role in creating the e-learning process.
- The implementation of student-centered learning and teaching encourages a sense of autonomy in the learner, while ensuring adequate guidance and support from the teacher.
- Teaching methods, tools and material used in teaching are modern, effective, support the use of modern educational technologies and are regularly updated.
- Mutual respect within the learner-teacher relationship is promoted.
- The implementation of student-centred learning and teaching respects and attends to the diversity of students and their needs, enabling flexible learning paths.
- Appropriate procedures for dealing with students' complaints regarding the process of teaching and learning are set.

2.2 Practical training

Standards
- *Practical and theoretical studies are interconnected.*
- *The organisation and the content of practical training, if applicable, support achievement of planned learning outcomes and meet the needs of the stakeholders.*

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2.3 Student assessment

Standards

- *A complete assessment framework is designed, focusing on e-learning methodology, including clearly defined evaluation criteria for student assignments and the final examination.*
- *Assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures.*
- *Assessment is appropriate, transparent, and objective and supports the development of the learner.*
- *The criteria for the method of assessment, as well as criteria for marking, are published in advance.*
- *Assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary, is linked to advice on the e-learning process.*
- *Assessment, where possible, is carried out by more than one examiner.*
- *A formal procedure for student appeals is in place.*
- *Assessors are familiar with existing testing and examination methods and receive support in developing their own skills in this field.*
- *The regulations for assessment take into account mitigating circumstances.*

2.4 Study guides structure, content and interactive activities

Standards

- *A study guide for each course, fully aligned with e-learning philosophy and methodology and the need for student interaction with the material is developed. The study guide should include, for each course week / module, the following:*
- *Clearly defined objectives and expected learning outcomes of the programme, of the modules and activities in an organised and coherent manner*
- *Presentation of course material, and students' activities on a weekly basis, in a variety of ways and means (e.g. printed material, electronic material, teleconferencing, multimedia)*
- *Weekly schedule of interactive activities and exercises (i.e. simulations, problem solving, scenarios, argumentation)*
- *Clear instructions for creating posts, discussion, and feedback*
- *Self-assessment exercises and self-correction guide*
- *Bibliographic references and suggestions for further study*
- *Number of assignments/papers and their topics, along with instructions and additional study material*
- *Synopsis*
- *Study guides, material and activities are appropriate for the level of the programme according to the EQF.*

You may also consider the following questions:
- *Is the nature of the programme compatible with e-learning delivery?*
- *How do the programme, the material, the facilities, and the guidelines safeguard the interaction between students, students and teaching staff, students and the material?*
- *How many students upload their work and discuss it in the platform during the semester?*
- *How is it monitored that the teaching staff base their teaching and assessment methods on objectives and intended learning outcomes? Provide samples of examination papers (if available).*
- *How are students' different abilities, learning needs and learning opportunities taken into consideration when conducting educational activities?*
- *How is the development of students' general competencies (including digital skills) supported in educational activities?*
- *How is it ensured that innovative teaching methods, learning environments and learning aids that support learning are diverse and used in educational activities?*
- *Is the teaching staff using new technology in order to make the teaching process more effective?*
- *How is it ensured that theory and practice are interconnected in teaching and learning?*
- *How is practical training organised (finding practical training positions, guidelines for practical training, supervision, reporting, feedback, etc.)? What role does practical training have in achieving the objectives of the study programme? What is student feedback on the content and arrangement of practical training?*
- ***Are students actively involved in research? How is student involvement in research set up?***
- *How is supervision of student research papers (seminar papers, projects, theses, etc.) organised?*
- ***Do students' assessments correspond to the European Qualifications Framework (EQF)?***
- *How are the assessment methods chosen and to what extent do students get supportive feedback on their academic progress during their studies?*
- *How is the objectivity and relevance of student assessment ensured (assessment of the degree of achievement of the intended learning outcomes)?*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

EUC offers distance learning programs since 2012. Overall, 36 % of EUC's students were enrolled in an e-learning program in 2022. With about 2.300 students, the School of Science is the largest school, with about 10% of online enrolments.

The nature of the program is compatible with distance learning mode delivery and there is institutional student and faculty support for DL methods and course development is provided by the Distance Education Unit (DEU) as described in Annex 9 of EUCs application. The technological infrastructure comprises the learning management system, Blackboard Learn Ultra platform for synchronous and asynchronous activities and the video conferencing platform Blackboard Collaborate for interaction in synchronous teleconferences. Turnitin is used for detecting plagiarism in written assignments.

Interaction with and collaboration among students are key elements of the pedagogical model. The Learning Management System (LMS) Blackboard supports synchronous and asynchronous interaction. Focus is placed on asynchronous interaction and collaboration, but up to six synchronous conferences are offered, which are not mandatory, but recorded for those students who were not able to attend. The size of the classes limited to 30 students per section allows the instructors to work in close contact with the students providing the guidance and encouragement needed, especially in distance learning settings.

Various digital tools and social media are used to facilitate online group interaction, collaboration, and content presentation such as padlets, interactive videos, forums, or group-conferences. Opportunities for practical, hands-on training are provided in the weekly assignments.

The course modules have a weekly study guide that includes relevant information: a summary and synopsis, goals, and objectives, intended learning outcomes, a bibliography, supplemental resources, self-assessment exercises and activities, and self-evaluation exercises.

The assessment of a module comprises of assignments (40 %) and interactive activities (10 %) throughout the courses, and a final written examination (50 %). For the e-proctoring of the final exams, the GDPR-compliant Respondus software/tool is used to monitor students taking the exams.

Strengths
A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

A suitable distance learning infrastructure and an adequate instructional methodology are put in place. The weekly study guides used in the courses can be considered good practice in the context of distance learning.

Learning activities, exercises and projects are designed to promote collaboration among students in which they apply their knowledge to solve complex problems. A variety of digital communication tools are used to support collaborative online learning.

The availability of synchronous and asynchronous activities enhances student engagement with the programme content and supports working DL students.

The program employs a range of approaches to enhance interaction among students (via group work), students and teaching staff (via interactive online sessions and the asynchronous forum), and students and the presented study material.

Areas of improvement and recommendations
A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

It could be considered to use more open educational resources and open textbooks.

In addition to participating in online classes together, ways to enhance international experiences for distance learners could be explored such as inviting more international experts and guest lecturers for virtual interactions (virtual internationalization).

In place of using proctoring tool, it could be considered developing cheating and plagiarism resistant assessment methods. This, in particular for a programme which is followed by working professionals, where the installation of a proctoring tool taking full control over their computers may be found to be unacceptable to their IT departments.

Please select what is appropriate for each of the following sub-areas:

Sub-area		Non-compliant/ Partially Compliant/Compliant
2.1	Process of teaching and learning and student-centred teaching methodology	Compliant
2.2	Practical training	Compliant
2.3	Student assessment	Compliant
2.4	Study guides structure, content and interactive activities	Compliant

ΦΟΡΕΑΣ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΤΗΣ ΑΝΩΤΕΡΗΣ ΕΚΠΑΙΔΕΥΣΗΣ
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3. Teaching staff *(ESG 1.5)*

Sub-areas

> 3.1 Teaching staff recruitment and development
> 3.2 Teaching staff number and status
> 3.3 Synergies of teaching and research

3.1 Teaching staff recruitment and development

Standards
- Institutions ensure the competence of their teaching staff.
- Fair, transparent and clear processes for the recruitment and development of the teaching staff are set up.
- Teaching staff qualifications are adequate to achieve the objectives and planned learning outcomes of the study programme, and to ensure quality and sustainability of the teaching and learning.
- The teaching staff is regularly engaged in professional and teaching-skills training and development.
- Training, guidance and support are provided to the teaching staff focusing on interaction and the specificities of e-learning.
- Promotion of the teaching staff takes into account the quality of their teaching, their research activity, the development of their teaching skills and their mobility.
- Innovation in teaching methods and the use of new technologies is encouraged.
- Conditions of employment that recognise the importance of teaching are followed.
- Recognised visiting teaching staff participates in teaching the study programme.

3.2 Teaching staff number and status

Standards
- The number of the teaching staff is adequate to support the programme of study.
- The teaching staff status (rank, full/part time) is appropriate to offer a quality programme of study.
- Visiting staff number does not exceed the number of the permanent staff.

3.3 Synergies of teaching and research

Standards
- The teaching staff collaborate in the fields of teaching and research within the HEI and with partners outside (practitioners in their fields, employers, and staff members at other HEIs in Cyprus or abroad).
- Scholarly activity to strengthen the link between education and research is encouraged.
- The teaching staff publications are within the discipline.
- Teaching staff studies and publications are closely related to the programme's courses.
- The allocation of teaching hours compared to the time for research activity is appropriate.

You may also consider the following questions:

- *Is the teaching staff qualified to teach in the e-learning programme of study?*
- *How are the members of the teaching staff supported with regard to the development of their teaching skills? How is feedback given to members of the teaching staff regarding their teaching results and teaching skills?*
- *How is the teaching performance assessed? How does their teaching performance affect their remuneration, evaluation and/or selection?*
- *Is teaching connected with research?*
- *Does the HEI involve visiting teaching staff from other HEIs in Cyprus and abroad?*
- *What is the number, workload, qualifications and status of the teaching staff (rank, full/part timers)?*
- *Is student evaluation conducted on the teaching staff? If yes, have the results of student feedback been analysed and taken into account, and how (e.g., when planning in-service training for the teaching staff)?*

Findings
A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

EUC has well specified and explicit policies for staff recruitment and guidelines and requirements for their career progression. They provide mandatory teacher training for new teachers, and optional annual training thereafter.

The teaching staff being interviewed were very motivated and knowledgeable of the processes pertaining to the programme's planning and its operation.

The teaching staff in the programme consists of a small number of full-time faculty members, and includes a significant number of part-time, adjunct faculty.

The full-time faculty members are also, when possible, publishing research within the field of cybersecurity – and benefit from a reduction in their teaching obligation when producing scientific publications.

The University makes an effort to train and develop its faculty in several ways. Every year the teaching staff has the opportunity to attend a ten-hour online training on various matters to improve their skills, both in online teaching and educational technologies. The training is mandatory for new faculty members and is updated on an annual basis.

Strengths
A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The existence of a clear and comprehensive set of requirements for career advancement. The faculty is familiar with the promotion scheme, the workload weighting criteria and research incentives (e.g., the teaching load reduction that results from scientific productivity).

EUC understands the importance of research for the teaching staff and provides support and encouragement for research activities and conference participation.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

Recruit more staff and, as stated earlier, senior staff with an international research profile.

Align internal staff evaluation processes with the promotion process. This contributes to transparency, staff integration and retention.

Align workload with internal staff assessment and promotion processes.

Introduce performance targets and performance monitoring.

Introduce School wide mechanisms to assess the quality of research outputs from mentoring to post publication assessment.

Lay down clear rules about working hours, response times and communicate them to staff and students.

As most of the teaching in the cybersecurity programme is done by adjunct part-time faculty (scientific collaborators), it is important to provide them with professional development opportunities.

The programme is taught by 2 full-time faculty members, assisted by 4 part-time adjunct instructors. Even with the upcoming recruitment of a 3rd full-time faculty member, that still means that the programme has more visiting staff members than permanent faculty members.

Please select what is appropriate for each of the following sub-areas:

Sub-area		Non-compliant/ Partially Compliant/Compliant
3.1	Teaching staff recruitment and development	Compliant
3.2	Teaching staff number and status	Non-compliant
3.3	Synergies of teaching and research	Compliant

4. Student admission, progression, recognition and certification *(ESG 1.4)*

Sub-areas

4.1 Student admission, processes and criteria
4.2 Student progression
4.3 Student recognition
4.4 Student certification

4.1 Student admission, processes and criteria

Standards
- *Pre-defined and published regulations regarding student admission are in place.*
- *Access policies, admission processes and criteria are implemented consistently and in a transparent manner.*

4.2 Student progression

Standards
- *Pre-defined and published regulations regarding student progression are in place.*
- *Processes and tools to collect, monitor and act on information on student progression, are in place.*

4.3 Student recognition

Standards
- *Pre-defined and published regulations regarding student recognition are in place.*
- *Fair recognition of higher education qualifications, periods of study and prior learning, including the recognition of non-formal and informal learning, are essential components for ensuring the students' progress in their studies, while promoting mobility.*
- *Appropriate recognition procedures are in place that rely on:*
  - *institutional practice for recognition being in line with the principles of the Lisbon Recognition Convention*
  - *cooperation with other institutions, quality assurance agencies and the national ENIC/NARIC centre with a view to ensuring coherent recognition across the country*

4.4 Student certification

Standards
- *Pre-defined and published regulations regarding student certification are in place.*
- *Students receive certification explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed.*

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> *You may also consider the following questions:*
>
> - *Are the admission requirements for the study programme appropriate? How is the students' prior preparation/education assessed (including the level of international students, for example)?*
> - *How is the procedure of recognition for prior learning and work experience ensured, including recognition of study results acquired at foreign higher education institutions?*
> - *Is the certification of the HEI accompanied by a diploma supplement, which is in line with European and international standards?*

Findings
A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

The School has policies and regulations on admission, progression, recognition and certification according to national/European policies. Candidates should hold a Bachelor's degree (there is no minimum grade) from cognate as well as non cognate disciplines and an English language qualification in order to be admitted to the programme. The recognition of degrees and diplomas is in line with national and European standards. We were not provided with information about the number of applications and the percentage of offers and acceptances.

Strengths
A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The assessed programme of study is open to graduates from diverse disciplines.

The assessed programme of study is open to professionals and practitioners.

The assessed programme of study recognises non academic qualifications and experience.

The assessed programme of study offers foundational courses to assist candidates from non cognate disciplines to join the programme.

Areas of improvement and recommendations
A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

Click or tap here to enter text.

Please select what is appropriate for each of the following sub-areas:

Sub-area		Non-compliant/ Partially Compliant/Compliant
4.1	Student admission, processes and criteria	Compliant
4.2	Student progression	Compliant
4.3	Student recognition	Compliant
4.4	Student certification	Compliant

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5. Learning resources and student support *(ESG 1.6)*

Sub-areas

5.1 Teaching and Learning resources
5.2 Physical resources
5.3 Human support resources
5.4 Student support

5.1 Teaching and Learning resources
Standards
- *Weekly interactive activities per each course are set.*
- *The e-learning material and activities take advantage of the capabilities offered by the virtual and audio-visual environment and the following are applied:*
  - *Simulations in virtual environments*
  - *Problem solving scenarios*
  - *Interactive learning and formative assessment games*
  - *Interactive weekly activities with image, sound and unlimited possibilities for reality reconstruction and further processing based on hypotheses*
  - *They have the ability to transfer students to real-life situations, make decisions, and study the consequences of their decisions*
  - *They help in building skills both in experiences and attitudes like in real life and also in experiencing - not just memorizing knowledge*
- *A pedagogical planning unit for e-learning, which is responsible for the support of the e-learning unit and addresses the requirements for study materials, interactive activities and formative assessment in accordance to international standards, is established.*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose.*
- *Student-centred learning and flexible modes of e-learning and teaching, are taken into account when allocating, planning and providing the learning resources.*

5.2 Physical resources
Standards
- *Physical resources, i.e. premises, libraries, study facilities, IT infrastructure, are adequate to support the study programme.*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose and students are informed about the services available to them.*

5.3 Human support resources

Standards

- *Human support resources, i.e. tutors/mentors, counsellors, other advisers, qualified administrative staff, are adequate to support the study programme.*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose and students are informed about the services available to them.*

5.4 Student support

Standards

- *Student support is provided covering the needs of a diverse student population, such as mature, part-time, employed and international students and students with special needs.*
- *Students are informed about the services available to them.*
- *Student-centred learning and flexible modes of learning and teaching, are taken into account when allocating, planning and providing student support.*
- *Students' mobility within and across higher education systems is encouraged and supported.*

You may also consider the following questions:

- *Evaluate the supply of teaching materials and equipment (including teaching labs, expendable materials, etc.), the condition of classrooms, adequacy of financial resources to conduct the study programme and achieve its objectives. What needs to be supplemented/ improved?*
- *What is the feedback from the teaching staff on the availability of teaching materials, classrooms, etc.?*
- *Are the resources in accordance with actual (changing) needs and contemporary requirements? How is the effectiveness of using resources ensured?*
- *What are the resource-related trends and future risks (risks arising from changing numbers of students, obsolescence of teaching equipment, etc.)? How are these trends taken into account and how are the risks mitigated?*
- *Evaluate student feedback on support services. Based on student feedback, which support services (including information flow, counselling) need further development?*
- *How is student learning within the standard period of study supported (student counselling, flexibility of the study programme, etc.)?*
- *How students' special needs are considered (different capabilities, different levels of academic preparation, special needs due to physical disabilities, etc.)?*
- *How is student mobility being supported?*

Findings
A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

The EEC has visited the EUC premises and discussed it with the support and admin personnel.

Overall, the EEC believes that EUC offers satisfactory resources and a wide range of services to both students and teaching staff (e.g., access to library material, IT infrastructure, and administrative support) including a wide range of sources (e.g., books, e-books, open-source platforms, and so on). Most of these are online resources so access by distance learners is not a problem.

The Distance Learning Unit (DLU) and the Team of Pedagogical Planning (TPP) are responsible for the professional development, guidance, and support of faculty members in all matters related to distance learning. The DLU is a decentralised unit, however with limited central staff (including the Director, one instructional designer, plus secretaries and student advisors). The staff is professionally qualified to carry out these activities. In addition to the DLU the "Content Factory" team was introduced in May 2022, reporting to the Vice Rector of Academic Affairs. The staff of the Content Factory team is mainly responsible for professional video production, including a director, one instructional designer, and technical staff.

Members of the Pedagogical Planning of Distance Learning Programs (i.e., Study Standing Committee) come from the School of Humanities, Social and Education Sciences to bring in their academic background and to act as "educational consultants" for their colleagues to develop and facilitate online courses.

Strengths
A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

Overall, physical and online resources appear to be adequate.

There are provisions for staff training in the DL methods of instruction and support from an established service department (DL unit and Content Factory team).

Faculty members state that they enjoy teaching in the programme and are quite enthusiastic about the quality of the services provided for online teaching.

The students say that they are very satisfied with the support they receive from the instructors. They receive answers to their questions quickly, even in the evenings and at weekends.

There is online access to electronic journals and books via the library.

Areas of improvement and recommendations
A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

Although the current staff of the DLU/TPP and the Content Factory team are providing good services, it is recommended to strengthen the central distance learning unit to offer professional distance/digital education services for students and faculty members, e.g. the Content Factory team could be integrated into the central DLU team, and one or two more instructional designers should be appointed. The services should be bundled in one centre, e.g., a Center for Teaching and Learning.

Given the increasing significance of distance learning programmes, it is essential to address the latest trends in educational technology and online learning in a professional manner. This includes developing open educational

resources, utilising learning analytics, and incorporating artificial intelligence applications, e.g., chatbots for academic guidance and student counselling. In light of recent developments in the area of generative AI tools such as ChatGPT, the university should issue a policy or guidelines, as well as training on how to use (or not use) such tools for teaching, learning and assessment.

Students said that sometimes – especially the external lecturers – do not turn on their webcams, probably due to network capacity problems. EUC has to assure that external, part-time faculty members operate from a work setting with proper internet connectivity.

Please select what is appropriate for each of the following sub-areas:

Sub-area		Non-compliant/ Partially Compliant/Compliant
5.1	Teaching and Learning resources	Compliant
5.2	Physical resources	Compliant
5.3	Human support resources	Compliant
5.4	Student support	Compliant

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D. Conclusions and final remarks

Please provide constructive conclusions and final remarks which may form the basis upon which improvements of the quality of the programme of study under review may be achieved, with emphasis on the correspondence with the EQF.

The program provides core knowledge and skills on cybersecurity, an area of ever increasing scientific and professional interest. It is delivered by committed staff. It follows University policies on admission, teaching and assessment. The library and technical resources are very good and support the delivery of the program. Student satisfaction is high. Graduates work in the public and private sector. In sum, it is a program which responds to current needs and has the potential for growth.

During the on-site visit, teaching staff and members of the University administration were cooperative and ready to respond to our questions and provide the requested information.

Our report and specific recommendations cover all relevant areas (design, delivery, teaching and assessment, staff, resources) with a view of enhancing the potential of the program. We are very much encouraged by the School's response to the previous assessment and remain at the disposal of the School if they need further information or clarifications.

We would also like to thank the Agency and Ms. Kazakaiou for their guidance and remain at their disposal for any clarifications that may be required in the review process.

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E. Signatures of the EEC

Name   *Signature*

Prof Nicholas Tsagourias

Prof Ahmed Al-Dubai

Prof Olaf Zawacki-Richter

Prof Thomas Heide Clausen

Themistos Arnaoutis

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Date: 30-5-2023